

APR/FY06

GERSTLE RIVER TEST SITE
Alaska

**Army Defense Environmental
Restoration Program
Installation Action Plan**

Final 7 August 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations, necessary remedial actions, and long-term management.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Gerstle River Test Site, IMC, executing agencies, and regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 3 April 2006:

Company/Installation/Branch

CEMML/US Army Garrison, Alaska

CRREL

DPW, FWA

Engineering and Environment, Inc. for USAEC

USAEC

US Army Garrison, Alaska

USEPA

Acronyms & Abbreviations

AEDB-R	Army Environmental Database - Restoration
ADC	Alaska Defense Command
ADEC	Alaska Department of Environmental Conservation
AK	Alaska
ATC/DTC	Arctic Test Center and Desert Test Center
bgs	below ground surface
CEMML	Center for Environmental Management of Military Lands
CERCLA	Comprehensive Environmental Response Compensation and Liability Act (1980)
CRREL	Cold Regions Research and Engineering Laboratory
CTC	Cost-to-Complete
CWM	Chemical Warfare Material
cy	cubic yards
DD	Decision Document
DoD	Department of Defense
DPW	Department of Public Works
ER,A	Environmental Restoration, Army (formally called DERA)
FS	Feasibility Study
ft	foot
FUDS	Formerly Used Defense Sites (Cleanup Program)
FWA	Fort Wainwright
FY	Fiscal Year
GB	Sarin (non-persistent nerve agent)
GRTS	Gerstle River Test Site
IAP	Installation Action Plan
IC	institutional control
IMC	Installation Management Command
IRP	Installation Restoration Program
K	thousand
LTM	Long-Term Management
LUC	land use control
NE	northeast
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
PA	Preliminary Assessment
POM	Program Objective Memorandum (budget)
RA	Remedial Action
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RD	Remedial Design
REM	Removal
RI	Remedial Investigation
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SHAD	Shipboard Hazard and Defense

Acronyms & Abbreviations

SI	Site Inspection
TAPP	Technical Assistance for Public Participation
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Center
USAG-AK	US Army Garrison, Alaska
USARAK	US Army, Alaska
USARPAC	US Army, Pacific Command
USATHAMA	US Army Toxic and Hazardous Materials Agency (now USAEC)
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
VX	persistent nerve agent

Installation Locale: The Gerstle River Test Site is an active maneuver training area near Fort Greely. This site was historically used as a test site for military testing of cold weather clothing and equipment, chemical and biological warfare materiel. In 1970, the surrounding Gerstle River Expansion Area (GRTS-002), a FUDS site, was turned over to the state of Alaska.

Installation Mission: US Army Alaska executes continuous training and readiness oversight responsibilities for Army Force Generation in Alaska. Provides Pacific Region with focused, early entry battle command capability for US Army Pacific and Joint Force Land Component Commander for Homeland Defense and Security in Alaska. Gerstle River Training area is an active training facility that is owned and operated by US Army Garrison-Alaska.

Lead Organization:

Installation Management Command, Pacific Region

Lead Executing Agency:

US Army Garrison-Alaska, Public Works Environmental Department

Regulatory Participation

Federal: US Environmental Protection Agency, Region X

State: Alaska Department of Environmental Conservation

National Priorities List (NPL) Status: Not on NPL

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status:

The Army Garrison-Alaska and the Alaska District, US Army Corps of Engineers, formed a RAB to address both the Gerstle River Site and the FUDS Gerstle River Expansion Area in 1996.

Installation Program Summaries

IRP

Primary Contaminants of Concern: UXO, CWM

Affected Media of Concern: Soil, Surface Water

Estimated Date for RC: 2008

Funding to date (up to FY05): \$1,081K

Current year funding (FY06): \$357K

Cost-to-Complete (FY07+): \$185K

Cleanup Program Summary

Installation Historic Activity

The Gerstle River Test Site has been a part of the US Army operations since acquisition under Public Land Order 910 on August 7, 1953. During a period of 1954 to 1962, the Chemical Corps conducted various chemical tests. This site was then used by CONARC/ATB for testing of Army chemicals until 1962. Between the years 1962-1967, surveillance testing of chemical munitions was conducted in the area by the Arctic Test Center.

Several major clean-up operations have occurred since the Army completed testing operations. In 1968, over 200 chemical projectiles were removed from Blueberry Lake. In August of 1970, the Arctic Test Center and Deseret Test Center (ATC/DTC) conducted "Cleanup Alaska." This operation included excavation of at least 8 disposal trenches. Materials excavated included: CWM residue and contaminated soils, 5 and 55 gallon drums of decontamination agent, and soil wastes and construction debris. This material was placed into two disposal trenches on the active test site. In 1971, all known waste was dug up and relocated to the Blueberry Lake Pits, located on the Test Site. The pits are roughly 150 meters squared and covered.

A RAB was formed in September 1996 due to community concerns after the Hajdukovich fire in 1994, to cover both the active Installation Restoration Program portion of Gerstle River Test Site, and the Gerstle River Expansion Area, which is covered by the Formerly Used Defense Site program. Membership included representatives of local government, business and the community. The RAB has participated in reviewing plans and technical documents, and provided advice on the scope of studies planned for the Expansion Area.

IRP

- **Prior Year Progress:** Historical research of documents and photos has been used to focus on areas of concern. This archive search has indicated where burial areas are, material that was used and testing protocols. These evaluations, combined with geophysical investigations, have alleviated the need to expend funds for intrusive testing. Review and evaluation of archival material is conducted by the Gerstle River Task Force comprised of US Army, USEPA and ADEC personnel. Informational signs have been placed to alert recreational and military users of buried debris sites and "no dig" requirements.
- **Future Plan of Action:** Continue the historical data search and complete a timeline depicting site history of testing activities is being developed. Analyze results of the geophysical studies to define disposal areas. Conduct sampling of surface water quality at areas downgradient and upgradient of the site. Conduct demolition and disposal of metallic debris on the site.

GERSTLE RIVER TEST SITE

Installation Restoration Program

Total AEDB-R IRP Sites/AEDB-R sites with Response Complete: 5/4

Different Site Types:

1 Chemical Disposal	2 Landfills
1 Spill Site Area	1 Unexploded Munitions/Ordnance

Most Widespread Contaminants of Concern: UXO, CWM

Media of Concern: Soil, Surface Water

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

REM-FY94 UST removal at Gerstle River Test Site (GRTS-001)

Total IRP Funding

Prior years (up to FY05):	\$1,081K
Current year funding (FY06):	\$ 357K
<u>Future Requirements (FY07+):</u>	<u>\$ 185K</u>
Total:	\$1,623K

Duration of IRP

Year of IRP Inception: 1975

Year of IRP RC: 2008

Year of IRP Completion including Long-Term Management (LTM): 2014

IRP Contamination Assessment

IRP Contamination Assessment Overview

Gerstle River Test Site is a 20,000 acre area located approximately 20 miles, southeast of Delta Junction and Fort Greely, Alaska. This site was comprised of one building that housed a laboratory, dining facilities, and quarters for personnel on the site. All buildings have now been demolished, and no permanent structures remain on site. Gerstle River Test Site is currently used by US Army Alaska as a maneuver training area.

Test records indicate that the US Army performed chemical agent and high explosive munitions testing between 1954-1962. Some documents from this era remain classified material and are not available for public use. In 1962, the US Army reorganized, and the Arctic Test Board, under the US Army Test and Evaluation Command, was established at Fort Greely. The purpose of the Test Board was to assist in performing test activities requiring arctic environments.

From December 1962 through September 1967, tests were conducted under Project Shipboard Hazard and Defense (SHAD) involving static detonation and firing of GB and VX munitions (mines, bomblets, rockets, and projectiles).

In 1966, chemical ordnance being stored on Blueberry Lake (within the test site) awaiting disposal inadvertently fell through the ice when it melted in the spring. In 1969, the lake was drained and all munitions were recovered. These munitions were demilitarized and the remains were placed in the two disposal trenches east of Blueberry Lake. Tests in the area of the pits have not detected any contaminants in soils or groundwater.

In June 1972, the lease of 64,829 acres at the adjacent “expansion area” (used for testing between 1964 and 1972) expired, and the property was turned over to the State of Alaska. This property is known as The Gerstle River Expansion Area and is managed under the FUDS program. Prior to the termination of the lease, a number of environmental cleanup operations were performed concurrently at the Expansion Area and Test Site, with “Operation Clean-up Alaska” ending in 1970. Material recovered from the Expansion Area during these cleanup operations was deposited in covered disposal trenches on the active test site.

In 1976, a site inspection (PA/SI) was performed on the Gerstle River Test Site, and the results were sent to the USEPA for ranking. Based on the inspections report, the USEPA determined that the Gerstle River Test Site was not a candidate for the National Priorities List.

A historical archive search began in FY04 and is expected to continue through FY07. Over 3,000 documents have been reviewed at the National Archives to determine the type of tests and testing materials that were utilized at Gerstle River. Institutional Control (IC) signs precluding digging in marked areas have been installed to warn recreational and military users of buried materiel on site.

IRP Contamination Assessment

IRP Cleanup Exit Strategy

Identify areas of concern using historical archives and geophysical surveys. Establish land use controls (LUCs) to protect recreational and military users. Meet the ADEC closure requirements for this site. The LUCs will be maintained indefinitely.

1959

- Report of Foundation and Materials Investigation, Gerstle River, TD-2, US ACE, Alaska District, Jul-59

1966

- Exploration and Testing of Subsurface Soils, Gerstle River Radioactive Waste Disposal Site, USACE, Alaska District, Mar-66

1976

- Installation Assessment of the Gerstle River Test Site, Report 105, Volume I, US Army Toxic and Hazardous Materials Agency, Dec-76

1986

- Gerstle River Test Site Monitoring Plan, US Army Cold Regions Test Center, Nov-86
- Analytical Results for Gerstle River Test Site Samples, Prepared for NPD Materials Laboratory, Century Testing Laboratories, Inc., Dec-86

1988

- Update of the Initial Installation Assessment of the Gerstle River Test Site, AK, Contract No. DAA15-85-D-0017 Task 0007/0010, Prepared for US Army 6th Infantry Division (Light) and US Army Garrison-Alaska Ft Richardson, and US Army Toxic and Hazardous Materials Agency, Environmental Science and Engineering, Inc., Mar-88

1993

- Site Screening Inspection Report for Gerstle River Test Site, Alaska, Contract No. DAA15-85-D-0017 Task 012, Prepared for US Army Toxic and Hazardous Materials Agency, Environmental Science and Engineering, Inc., Jan-93

1994

- Archives Search, Conclusions and Recommendations, Gerstle River Expansion Area, Big Delta, Site Nos. F10AK098400, USACE, St. Louis District, Jun-94
- Gerstle River Expansion Area, Public Meeting & Residential Interview Report, Contract No. F10AK098404, Dames & Moore, Sep-94
- Underground Storage Tank Removal, Site Assessment, and Recommendations, Brown and Root, Service Contractor, Sep-94
- Site Characterization Operation Gerstle River Expansion Area Final Report, Contract No. DACA88-94-P-1293, Human Factors Applications, Inc., Explosive Ordnance Disposal Division, Oct-94

1995

- Initial Project Management Plan (IPMP) for Ordnance and Explosive Waste (OEW) at Gerstle River Expansion Area and Test Site, Project No. F10AK098404, US Army Corps of Engineers, Huntsville Division, Feb-95

1995 (cont.)

- Final 1995 Non-Intrusive Work and Safety Plan; Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Contract No. DACA87-92-D-0021, Dames & Moore, Jun-95
- 1996 Intrusive Work and Safety Plan (Phase 2); Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Draft Report Contract No. DACA87-92-D-0021, Dames & Moore, Nov-95
- Geophysical Target Analysis Report; Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Draft Report Contract No. DACA87-92-D-0021, Dames & Moore, Dec-95

1996

- Project Manager Non-Stockpile Chemical Material, Gerstle River Expansion Area, Interim Holding Facility Plan, US Army, Program Manager for Chemical Demilitarization, Apr-96
- 1996 Intrusive Work and Safety Submission (Phase 2), Site Investigation for OE and RCWM, Gerstle River Expansion Area and Test Site, Contract No. DACA87-92-D-0021, Dames & Moore, Jun-96

1998

- Update of the Initial Installation Assessment of Gerstle River, USATHAMA , Mar-98
- Final Records Review Memorandum For The Gerstle River Expansion Area, Big Delta, AK, June-98

GERSTLE RIVER TEST SITE

Installation Restoration Program
Site Description

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SITE DESCRIPTION

The Gerstle River Test Site, encompassing approximately 20,800 acres, has been part of US Army operations since its acquisition under Public Land Order 910 on August 7, 1953. Weapons tests were actively conducted in this area from December 1962 through September 1967. Weapons testing during this period included static detonation of various munitions releasing nerve agents VX and Sarin (GB) and dynamic firing of projectiles with release of GB and VX to the atmosphere. All tests using chemical agents at the GRTS were suspended in 1967 and have never resumed to date. This site is considered an active maneuver training range. It is also utilized as a recreational and hunting area.

Four major clean-up efforts have been conducted since 1967; the last cleanup effort was "Operation Clean-up Alaska," carried out in 1970. During this effort, chemical munitions were removed from Blueberry Lake, decontaminated, detonated and the scrap metal was buried; debris from test grids on leased land was removed to disposal pits on Test Site property.

In 1987, a site investigation was conducted by USATHAMA. These reports were used for placement into the IRP program. Samples were collected at locations coordinated and selected with the approval of USEPA and the ADEC. Samples were collected from surface soil, sediments, surface water from streams, and one groundwater well located at the Command Post. The samples collected were analyzed for the presence of chemical agents; the results did not indicate the presence of contamination.

In the 1990s, an extensive geophysical investigation was completed to identify the locations of burial pits at Blueberry Lake and other locations.

In FY04, a historical data search was conducted and a warning sign was placed at the site entrance. A Gerstle River Task Force (USEPA, ADEC, USACE, USAG-AK) was formed in FY04 and meets quarterly. Institutional Controls have been put into place to

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
UXO, CWM

MEDIA OF CONCERN: Soil,
Surface Water

Phases	Start	End
PA	197506	197612
SI	199206	199210
RI/FS.....	200310	200809
IRA.....	200505	200510
LTM.....	200809	201410

RC: 200809

GRTS-001

GERSTLE RIVER TEST SITE (PAGE 1 OF 2)

indicate the areas of concern and the areas where no digging is allowed (to be maintained indefinitely). In FY06, geophysical studies were conducted to verify earlier findings. In addition, surface water samples were taken; results will be published in 2007 and reviewed for any possible action requirements.

NOTE: There is a separate area known as the Gerstle River Expansion Area (~97,000 acres) that is being addressed under the Formerly Used Defense Sites (FUDS) Program.

CLEANUP STRATEGY

The historical data search will be continued. A timeline depicting site history of testing activities is being developed. Analyze results of the geophysical studies to define disposal areas. Conduct sampling of water quality at areas downgradient and upgradient of the site. Dispose of metallic debris on the site. Land use controls are anticipated. Since this remains an active maneuver area, the Installation will assume full responsibility for inspection and maintenance by FY12.

IRP No Further Action Sites Summary

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
GRTS-002	Expanded Gerstle River T.S.	FUDS eligible	199510
GRTS-003	Blueberry Lake Accidental Spill	Combined into GRTS-001	199512
GRTS-004	Disposal Pit NW of Chemical Test Fac	Combined into GRTS-001	199510
GRTS-005	Disposal Pit E of Blueberry Lake	Combined into GRTS-001	199210

Initiation of IRP: 1988

Past Phase Completion Milestones

1975

PA Initiation (GRTS-001, 002, 003, 004 & 005), June

1976

PA Completion (GRTS-001, 002, 003, 004 & 005), December

1992

SI Initiation (GRTS-001, 002, 003, 004 & 005), June

SI Completion (GRTS-01, 002, 003, 004 & 005), October

1994

REM Initiation, UST (GRTS-001), July

REM Completion, UST (GRTS-001), September

RI Initiation (GRTS-001 & 002), November

1995

RI Completion (GRTS-002), October

RD Initiation (GRTS-002), October

RI Completion (GRTS-001), October

1996

RA Initiation (GRTS-002), October

RD Completion (GRTS-002), October

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:

200709

Schedule for Next Five-Year Review: N/A

Estimated Completion Date of IRP (including LTM phase): 2011

Gerstle River Test Site IRP Schedule

(Based on current funding constraints)

AEDB-R #	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
GRTS-001	RI/FS									
	LTM									

Prior Years Funds

Funding up to FY04: \$881K

Year	Site Information	Expenditures	FY Total
FY05	RI/FS at GRTS-001	\$200K	\$200K
Total Funding up to FY05: \$1,081K			

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06		\$357K	\$357K
Total Funding FY06: \$357K			

Total Future Requirements: \$185K

Total IR Program Cost (from inception to completion of the IRP): \$ 1,623K

The Army formed a RAB for Gerstle in 1996 with FUDS to jointly address public concerns at the Gerstle River Test Site and the FUDS Gerstle River Area. Initial investigations in 1996 indicated there was no current threat to human health and the environment at the Test Site. Therefore, the GRTS-001 RI was postponed until the future due to the prioritization received by the Army Relative Risk system. In addition, the Army was not conducting any work at Gerstle besides a UXO removal. Once that work was completed, the Army's role in the RAB was no longer required until the RI resumed at the Test Site.

Community concerns and views are recorded as part of the Gerstle River FUDS RAB. In addition, meetings have occurred between local tribes and stakeholders in the immediate area to present information and listen to concerns on this site.

In 2003, when the Army began the historical research the test site, the Army again rejoined the existing RAB. The Army continues to co-chair the RAB with FUDS. The FUDS sites are expected to gain closure in 2006, at which time, the Army will be the sole chair of the RAB.